

- In re Appln. of HATTA et al.
Application No. Unassigned

CLAIM AMENDMENTS

1. (Currently Amended) A differential drive ~~type~~ semiconductor optical modulator comprising:

a differential driver circuit having ~~a~~ first and ~~a~~ second output terminals which can output a pair of differential signals;

a transmission-line substrate having a first transmission line connected to the first output terminal, a second transmission line connected to the second output terminal, and a ground line;

a first semiconductor modulator connected between the first transmission line and the ground line, mounted on the transmission-line substrate; ~~and~~

a second semiconductor modulator connected between the second transmission line and the ground line, mounted on the transmission-line substrate; the first and second semiconductor modulators being arranged in series along a common ~~optie~~ optical axis; and

~~wherein~~ a first terminal resistor connected between a terminal end of the first transmission line and the ground line, a second terminal resistor connected between a terminal end of the second transmission line and the ground line, a first inductance interposed between the first semiconductor modulator and the first terminal resistor, and a second inductance interposed between the second semiconductor modulator and the second terminal resistor ~~are provided, located~~ on the transmission-line substrate.

2. (Currently Amended) The differential drive ~~type~~ semiconductor optical modulator according to Claim 1, wherein the first semiconductor modulator is arranged ~~in the~~ on an optical incident side of the ~~optie~~ optical axis rather than the second semiconductor modulator, and the ~~optical path length of the first semiconductor modulator is~~ has an optical path length shorter than ~~the~~ optical path length of the second semiconductor modulator.

3. (Currently Amended) The differential drive ~~type~~ semiconductor optical modulator according to Claim 1 further comprising: an optical modulator integrated device ~~in which~~ including the first and second semiconductor modulators and an optical waveguide ~~for~~ optically connecting the first and second semiconductor modulators are integrated.

4. (Currently Amended) The differential drive ~~type~~ semiconductor optical modulator according to Claim 3, wherein each of driving electrodes of the first and second

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semiconductor modulators is arranged on ~~the~~ a principal plane of the optical modulator integrated device.

5. (Currently Amended) The differential drive ~~type~~ semiconductor optical modulator according to Claim 4, wherein the optical modulator integrated device is mounted on the transmission-line substrate by flip-chip mounting.

6. (Currently Amended) The differential drive ~~type~~ semiconductor optical modulator according to Claim 1, wherein the first and second inductances are ~~formed of~~ elimmed narrowed portions in of the first and second transmission lines.

7. (Currently Amended) The differential drive ~~type~~ semiconductor optical modulator according to Claim 1, wherein the first and second semiconductor modulators are mounted ~~onto the~~ in close proximity ~~of to~~ the first and second inductances.

8. (Currently Amended) The differential drive ~~type~~ semiconductor optical modulator according to Claim 1, ~~wherein~~ including an electric delay portion due to ~~the~~ difference differences in path-length ~~is provided~~ lengths in at least one of the first and second transmission lines.

9. (Currently Amended) The differential drive ~~type~~ semiconductor optical modulator according to Claim 1, ~~wherein~~ including a phase inverter for inverting phase of a signal ~~is provided~~ in at least one of the first and second transmission lines.

10. (Currently Amended) The differential drive ~~type~~ semiconductor optical modulator according to Claim 1, wherein the differential signal from the differential driver circuit is an RZ signal.